Local Residential Streets
30 km/h Design Toolbox

2022 Education Series Meeting
Update to the City of Ottawa Standard
Tender Documents for Unit Price Contracts
March 8, 2022

Project Background

- **Purpose:** Create guidelines to design local residential streets with a 30 km/h operating speed
- **Timeline:** Initiated in 2020, completed in Fall 2021
- **Consultation:** Stakeholders include City staff from various departments, representatives from the development industry and the Accessibility Advisory Committee
- **Associated Guidelines:** This guideline builds upon the consultation process and design guidance provided in the City's approved Traffic Calming Design Guidelines.

Background - Policy Direction

- City Council approved a Strategic Road Safety Action Plan (RSAP) Update on December 11, 2019 and provided the following direction:
  - Design all new local residential streets, constructed within new developments, or when reconstruction occurs on local residential streets, for a 30 km/h operating speed.
  - Develop a guideline to provide design guidance to achieve a 30 km/h target speed for new roadways, reconstructions or traffic calmed roadways.

General Design Objectives

- The Design Toolbox provides an overview of each measure including: speed reduction benefits, ancillary benefits and design guidance.
- Use in conjunction with the Toolbox Applicability Matrix to determine which measures are best suited to various contexts.
- Factors that impact effectiveness of each measure include: suitability of the measure to the context, frequency of implementation and combination with complementary measures.

Speed Management Measures

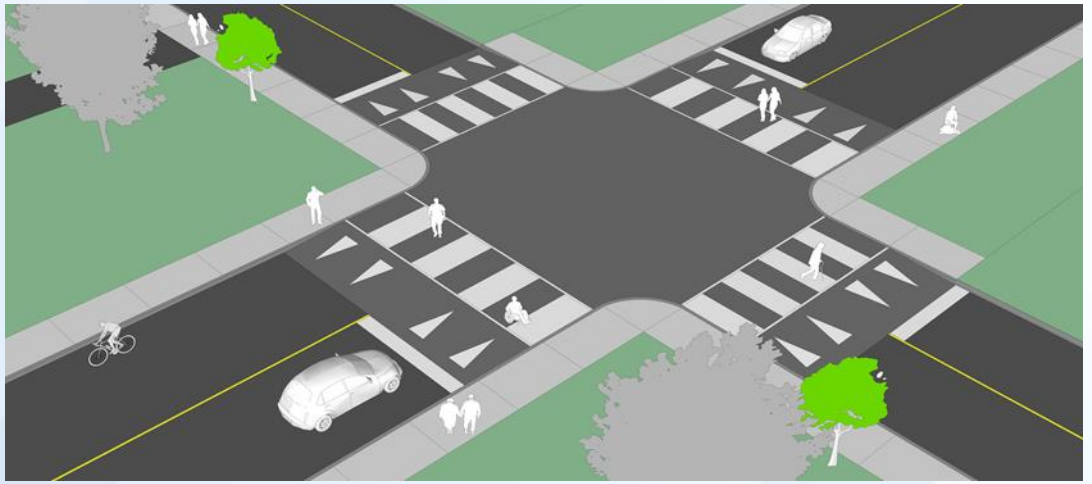
There are six (6) major components to the toolbox:

- **Intersection Measures**
- **Gateway Measures**
- **Mid-Block Measures**
- **Street-Edge Measures**
- **Emerging Measures**
- **Communications and Enforcement**

1. Intersection Measures

Typically located in the vicinity of intersections of local streets with each other, or intersections of local streets with collector or arterial streets, and include measures such as:

- Raised intersections and crosswalks
- Mini roundabouts;
- Corner tightenings; and,
- Curb extensions/bulb-outs etc.



Raised Intersection

2. Gateway Measures

These measures create a “gateway” effect, typically located at the entrances to neighbourhoods or at special places within them and can include:

- Physical gateways;
- Vehicle directional closures; and,
- On-road messaging etc.

Vehicle Directional Closure

3. Mid-Block Measures

These speed reduction measures are repeated along the length of the street, to reinforce the lower speed environment.

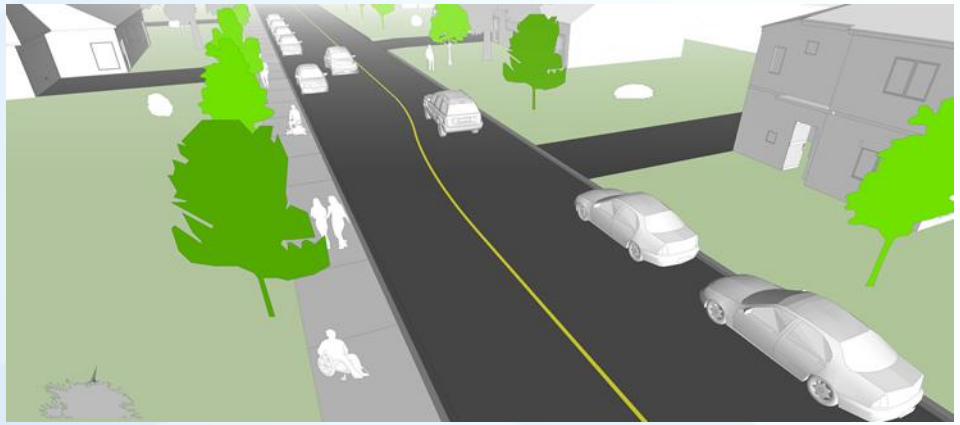
- Speed humps and tables;
- Curb extensions/bulb-outs; and,
- Centre island narrowings etc.

Mid-block Curb Extension

4. Street-Edge Measures

Street-edge measures are repeated along the edge of the street and may reinforce the land use and landscaping of buildings along the street, to support the lower speed environment.

- Chicanes (alternating curb extensions);
- Alternating street parking; and,
- Urban design / tree plantings etc.



Alternating Street Parking

5. Emerging Measures

These speed management measures are currently being evaluated for their applicability in the City and may be candidates for pilot projects.

- Continuous footway / bikeway;
- Woonerven (“living” streets designed for people not cars); and,
- Speed kidneys etc.

Continuous Footway / Bikeway

6. Communication and Enforcement

These measures work in conjunction with all physical measures, and involve communication, education, and enforcement and include:

- Speed display devices;
- Automated speed enforcement; and,
- Educational campaigns etc.

Automated Speed Enforcement

Tier Classification of Measures

- Each speed management measure has a different level of effectiveness and is classified as follows:
  - Tier 1: A reduced speed is necessary
  - Tier 2: A reduced speed is likely
  - Tier 3: A reduced speed is likely only when combined with Tier 1 or 2
- Tier 1 measures must be included unless they are not feasible, in which case frequency of Tier 2 measures must increase
- Tier 3 measures are intended to supplement Tier 1 and Tier 2 measures and are not effective in isolation

Tier Classification Table

Tier Classification	Speed Management Measure
Intersection Measures (Section 4.4)	
Tier 1	• Raised intersections • Raised crossings • Mini-roundabouts • Corner tightenings
Tier 2	• Bulb-outs/curb extensions/neckdowns/narrowings/chokers (constructed) • Intersection channelizations (traffic management) • Raised median through intersections (traffic management) • Vehicle diverters (traffic management) • Right-In-Right-Out Islands (traffic management))
Tier 3	• Surface treatments - textured crossing
Gateway Measures (Section 4.5)	
Tier 1	• No gateway measures meet this classification
Tier 2	• Physical gateways • Vehicle directional closures (traffic management)) • On-street plazas and vehicle access closures (traffic managem
Tier 3	• On-road messaging (pavement markings)
Mid-Block Measures (Section 4.6)	
Tier 1	• Speed humps and speed tables • Speed cushions
Tier 2	• Mid-block neckdowns/chokers/curb extensions (constructed) • Cycle friendly bulb-outs • Centre island narrowings • Vertical centerline treatments
Tier 3	• Mid-block neckdowns/chokers/curb extensions (painted) • Painted centreline • Textured surfaces
Street Edge Measures (Section 4.7)	
Tier 1	• Chicanes
Tier 2	• On-street parking (on streets with high utilization) • Alternating on-street parking (no curb extension, on streets with high utilization)
Tier 3	• Painted edgeline/shoulder • Urban design (streetscaping) • On-street parking (on streets with low utilization) • Alternating on-street parking (no curb extension, on streets with low utilization)
Emerging Measures (Section 4.8)	
Tier 1	• Speed kidney • Continuous footways/bikeways
Tier 2	• Traffic button/punaise • Woonerven or “Living Streets” • Lane narrowings • Shared spaces
Tier 3	• Creative pavement markings
Communication and Enforcement (Section 4.9)	
Tier 1	• No communication and enforcement measures meet this classification
Tier 2	• Automated speed enforcement • Speed display device
Tier 3	• Educational campaigns

Toolbox Application Matrix (excerpt)

Legend		
Symbol	**Meaning**	**Definition**
•	General Applicability	Appropriate in most project contexts
o	Site-Specific Applicability	Appropriate given the correct project context
V	Limited Applicability	Generally not appropriate, but may be useful in rare project contexts
X	Not Recommended	Not appropriate for the indicated type of local residential street project

Speed Management Measure **(Adapted from City of Ottawa Traffic Calming Design Guidelines, 2019)**	**Local Residential Street Project Applicability**						**Other Applicability Considerations (see Endnotes)**
	New Streets or Street Reconstruction Projects			**Street Retrofit Projects**			
	Curbed Streets (urban area / village	**Curbless Streets (urban area / village)**	**Curbless Streets (rural area)**	**Curbed Streets (urban area / village)**	**Curbless Streets (urban area/village)**	**Curbless Streets (rural area)**	
Intersection Measures (Section 4.4)							
Bulb-Outs/Curb Extensions/Neckdowns/Narrowings/Chokers (constructed)	•	o	v	o	o	v	5
Raised Intersections	•	o[11]	o[11]	X	X	X	5, 15
Raised Crossings	•	X	X	o	X	X	2, 5, 11, 15
Cycle Friendly Bulb-Outs	•	v	X	•	v	X	5
Corner Tightenings/Curb-Radius Reduction	•	X	X	o	X	X	5
Mini-Roundabouts	o	o	o	v	v	v	10, 15

Demonstration Plan

Accessibility

- The 30 km/h Design Toolbox is consistent with the City's Accessibility Design Standards (2015) and the Accessibility For Ontarians with Disabilities Act (2005).
- The guidelines will consider the impacts of roadway design on accessibility features and will not create any specific accessibility barriers for persons with disabilities.
- Apply an accessibility and universal design lens from conception through to implementation.

Implementation Recommendations

- Anchor the intent of this guideline in the OP, TMP and CDPs.
- Reference the requirements in the Traffic Impact Assessment guidelines.
- Revise or reference a plan of subdivision approval conditions.
- Discuss speed management requirements at pre-consultation meetings.
- Install 30km/h speed regulation signage early, in consultation with City.
- Consider measures that reduce cost of construction and operation.

Design and Review Considerations

1. Review speed management, driveway spacing, parking and drainage early in the process
2. Ensure appropriate spacing of measures is achieved:
   a. Speed humps: 50m to 60m
   b. Curb extensions: 40m to 60m
3. Confirm that on-street parking targets are met
4. Apply an accessibility lens
5. New OP recommends sidewalks on at least one side of all local roads
6. Standard detail drawings apply, where available

Monitoring

- This toolbox is intended to be a living document and should be updated with new emerging measures as they are developed.
- The City will monitor the results of implementing the 30 km/h Design Toolbox to evaluate effectiveness.
- Design standards will evolve over time based on the City’s experience and emerging provincial and national guidelines.
- City of Ottawa Standard Unit should be consulted when standard details are not available for emerging measures.

Questions?

Thank You!

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Link to Design Toolbox:
https://ottawa.ca/en/local-residential-streets-30-kmh-design-toolbox